

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method for manufacturing a long resin molding having an axial bend, comprising:
 - supplying a resin molding material in heated and molten state extruded from an extrusion die to a sizing flow channel of a sizing equipment;
 - solidifying the resin molding material by cooling from outside within the sizing flow channel to calibrate the resin molding into a predetermined cross sectional shape;
 - extruding the resin molding of the predetermined cross sectional shape from an exhaust port of the sizing flow channel at a constant extrusion direction and a constant angle carriage and in a state capable of plastic deformation;
 - supplying continuously the resin molding to a molding gripping portion of a bender disposed on the downstream side of an exhaust port of the sizing equipment along the constant extrusion direction, the gripping portion slidably gripping the resin molding; and
 - performing controlling a radius of curvature of a bend in the resin molding in
an axial bending process for the resin molding when the resin molding passes through the gripping portion by changing a position of the gripping portion to a position not along the constant extrusion direction.
2. (Original) The manufacturing method according to claim 1,
wherein the step of performing the axial bending process includes performing the axial bending process while keeping a part of the resin molding to be processed in a condition where the temperature of the inside is higher than the temperature on the outer surface of the resin molding.
3. (Original) The manufacturing method according to claim 2,

wherein the keeping step includes keeping the part of the resin molding to be processed in a condition where the temperature on the outer surface is lower than the heat distortion temperature of the resin molding material composing the resin molding, and keeping the temperature of the inside of the part of the resin molding higher than or equal to the heat distortion temperature of the resin molding material and lower than the melting temperature.

4. (Previously Presented) The manufacturing method according to claim 1, wherein the step of performing the axial bending process includes performing a bending process for a part of the resin molding in the longitudinal direction of the axial line at a different radius of curvature from another part by changing the position of the gripping portion in accordance with a length of the resin molding passing through the gripping portion.

5. (Original) The manufacturing method according to claim 1, further comprising: applying a force on the resin molding in the same direction as the extrusion direction on the downstream side of the exhaust port of the sizing equipment and the upstream side of the gripping portion to cause the force to act as a pulling force of the resin molding from the sizing flow channel and a pushing force of the resin molding to the gripping portion.

6. (Original) The manufacturing method according to claim 1, further comprising compulsorily cooling the resin molding from the outer surface with a coolant at least after the middle of the bending processing.

7. (Original) The manufacturing method according to claim 1, the solidifying step includes cooling the resin molding material from the outer surface within the sizing flow channel so that the outer surface of the resin molding has a lower degree of crystallinity than the inside, the resin molding material being a material containing crystalline resin as the main component.

8. (Original) The manufacturing method according to claim 1, further comprising detecting an extrusion length of the resin molding, and cutting off the resin molding after the bending processing on the downstream side of the gripping portion, when the extrusion length reaches a predetermined length.

9. (Previously Presented) The manufacturing method according to claim 1, wherein the gripping portion performs at least two of the following operations,

- (a) changing the position in a first direction crossing the extrusion direction,
- (b) changing the position in a second direction crossing at a right angle to the first direction, and
- (c) changing the angle carriage.

10. (Previously Presented) The manufacturing method according to claim 1, further comprising:

performing an axial twisting process for the resin molding when the resin molding passes through the gripping portion by disposing the gripping portion in a carriage different from the constant angle carriage.

11-16. (Canceled)

17. (Currently Amended) A method for manufacturing a long molding having an axial bend along a longitudinal direction, comprising:

forming a long first member capable of plastic deformation continuously in the longitudinal direction, by employing a first member molding unit, the long first member having a predetermined cross sectional shape, and having a constant radius of curvature and a constant angle carriage on the axial line in the longitudinal direction;

supplying continuously the first member to a first member gripping portion of a bender disposed on the downstream side of the first member molding unit, the first member gripping portion slidably gripping the first member;

performing controlling a radius of curvature of a bend in the resin molding in an axial bending process for the first member, when the first member passes through the first member gripping portion, by changing a position of the first member gripping portion to a position not along the longitudinal direction;

causing the first member passing through the gripping portion to pass through an extrusion die provided near the gripping portion and at a position corresponding to an axial position passing through the gripping portion; and

extruding a heated and molten liquid resin molding material for formation of a second member through an orifice of the extrusion die while following a bend of the first member to integrate the second member made of the molding material and having a predetermined cross sectional shape with the first member.

18. (Previously Presented) The manufacturing method according to claim 17, wherein the step of performing the axial bending process includes performing a bending process for a part of the first member passing through the gripping portion in the longitudinal direction at a different radius of curvature from another part by changing the position of the gripping portion or the extrusion die in accordance with a length of the first member passing through the gripping portion; and

the extruding step includes integrating the second member extruded through the orifice with the first member along a longitudinal direction of the processed first member.

19. (Previously Presented) The manufacturing method according to claim 17, wherein the gripping portion performs at least two of the following operations,
(a) changing the position in a first direction crossing the direction of supplying the first member,
(b) changing the position in a second direction crossing at a right angle to the first direction, and

(c) changing the angle carriage.

20. (Previously Presented) The manufacturing method according to claim 17, further comprising: detecting a supply length of the first member; and changing the position of the gripping portion or the extrusion die when the supply length reaches a predetermined length.

21. (Original) The manufacturing method according to claim 17, further comprising: compulsorily cooling and solidifying the second member after integrating the second member with the first member.

22. (Original) The manufacturing method according to claim 17, wherein the step of forming a long first member includes: roll forming a metallic strip material by the first member molding unit, and forming continuously the first member having the predetermined cross sectional shape in the longitudinal direction.

23. (Previously Presented) The manufacturing method according to claim 17, further comprising:

performing an axial twisting process for the first member, when the first member passes through the first member gripping portion, and the gripping portion is disposed at a carriage different from the constant angle carriage;

causing the first member passing through the gripping portion to pass through an extrusion die provided near the gripping portion and at a carriage corresponding to an angle carriage of the first member passing through the gripping portion; and

extruding a heated and molten liquid resin molding material for formation of a second member through an orifice of the extrusion die while following a twist of the first member to integrate the second member made of the molding material and having a predetermined cross sectional shape with the first member.

24-25. (Canceled)

26. (Currently Amended) A method for manufacturing a long molding having an axial bend along a longitudinal direction, comprising:

forming a long first member capable of plastic deformation continuously in the longitudinal direction, by employing a first member forming unit, the long first member having a predetermined cross sectional shape, and having a constant radius of curvature and a constant angle carriage on the axial line in the longitudinal direction;

supplying controlling a radius of curvature of a bend in the resin molding in
continuously the first member to a gripping portion of a bender disposed on the downstream side of the first member molding unit, the gripping portion slidably gripping the first member;

performing an axial bending process for the first member, when the first member passes through the gripping portion, by changing a position of the gripping portion to a position not along the longitudinal direction;

causing the first member passing through the gripping portion to pass through a second member extrusion die provided near the gripping portion and at a position corresponding to an axial position of the first member passing through the gripping portion; and

extruding a heated and molten liquid resin molding material for formation of a second member through a second member molding opening of the second member extrusion die while following a bend of the first member to integrate the second member made of the molding material with the first member;

wherein the second member extrusion die has a substantially changeable opening shape of the second member molding opening; and the second member having a different cross sectional shape between a part and another part in the longitudinal direction is extruded in accordance with a change of the opening shape by changing the opening shape at a predetermined timing in extruding the second member.

27. (Original) The manufacturing method according to claim 26,
wherein the opening shape of the second member molding opening is changed
in accordance with the length of the first member passing through the gripping portion.

28. (Previously Presented) The manufacturing method according to claim 26,
further comprising: detecting a supply length of the first member, and changing the position
of the gripping portion or the extrusion die when the supply length reaches a predetermined
length.

29. (Previously Presented) The manufacturing method according to claim 26,
further comprising: detecting the supply length of the first member; and changing the opening
shape of the second member molding opening when the supply length reaches a
predetermined length.

30. (Original) The manufacturing method according to claim 26, further
comprising: compulsorily cooling and solidifying the second member after integrating the
second member with the first member.

31. (Previously Presented) The manufacturing method according to claim 26,
further comprising:

performing an axial twisting process for the first member, when the first
member passes through the gripping portion, and the gripping portion is disposed at a carriage
different from the constant angle carriage;

causing the first member passing through the gripping portion to pass through
a second member extrusion die provided near the gripping portion and at a carriage
corresponding to an angle carriage of the first member passing through the gripping portion;
and

extruding a heated and molten liquid resin molding material for formation of a
second member through a second member molding opening of the second member extrusion

die while following a twist of the first member to integrate the second member made of the molding material with the first member;

wherein the second member extrusion die has a substantially changeable opening shape of the second member molding opening; and the second member having a different cross sectional shape between one part and the other part in the longitudinal direction is extruded in accordance with a change of the opening shape by changing the opening shape at a predetermined timing in extruding the second member.

32. (Canceled)